IAU Symposium 213: "Bioastronomy 2002: Life Among the Stars".

Abstract

The search for Complex Hydrocarbons and Biogenic Molecules Using Rotational Transitions from Radio to Millimeter Wavelengths

T. Velusamy and W. D. Langer
Jet Propulsion Laboratory(Caltech)
Pasadena, CA 91109, USA

There is growing evidence that interstellar molecules, including certain prebiotic species, survive in carbonaceous chondrites and cometary nuclei, and may contribute to the chemical makeup of the early earth's atmosphere. The bulk of the relevant data on interstellar molecules comes from radio observations of rotational spectra. The centimeter radio wavelength is suited particularly for the large molecules (number of atoms > 10) in dense, cold cloud cores. We present the results of our search for biogenic molecules in pre-protostellar cores at frequencies 10 - 100 GHz using NASA's Deep Space Network (DSN) 70m and 34m telescopes. Such results can be used to trace the pathways for forming prebiological molecules in space.

This work was performed by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.